Response by the International Code Council to Questions from the California Office of Statewide Health Planning and Development (OSHPD)

June 2, 2003

Questions Related to Structural Provisions

1. Describe the acceptance criteria used to select referenced publications for the code.
a. Are there standards for style and format?
b. What criteria are used to determine enforceability of the referenced publications?
c. Is the participation of enforcement agencies in the development of the referenced publications a consideration?
d. How are the issues of referenced publication cost, availability, and policies on updates and errata considered?

The ICC has an "ICC Code Development Process" that describes the requirements in order for a standard to be considered for reference or to continue to be referenced by the ICC family of codes. Section 3.6 in that document, provided as an attachment to this response, addresses the criteria covering this subject. There are no requirements for a particular style or format of text presentation and there is no specific requirement that the standard development committee have voting membership for those that enforce the standard themselves. The reason being that a true consensus process would include a number of those enforcers to maintain a proper balance and to get the view of those who have to deal with its contents daily. The ICC is very concerned about the affordability of referenced standards and has an Ad Hoc Committee on the Use of Referenced Standards well underway. This group is intended to review the current usage of standards in the ICC codes and make recommendations as to the usefulness of the standard and how its information should be provided.

2. Describe the methods used to review referenced publications cited in the structural chapters, prior to adoption into the code.
a. What process is used to evaluate and amend the referenced publications?
b. How many individuals review each publication?
c. How much time is allotted to the effort?
d. Is there a written public record of the findings and recommendations of the reviewers?

The ICC code change process is used to evaluate the inclusion of a new or update to an existing reference document. Staff reviews a code change proposal that contains a referenced standard and sufficient copies of the standard must be provided to the ICC committee responsible for the applicable code for them to evaluate. The staff secretariat first reviews the standard for compliance with the

ICC criteria for referenced standards contained in the procedures mentioned above under question 1. The proponent of the code change with the referenced standard must make their case for adoption and use of the standard before the applicable committee(s) at the code change hearings. As such the staff, applicable ICC committee(s) and any and all interested and affected parties who choose to would review each publication and the context within which it would be referenced in the subject code. Staff would typically have 6 months from submittal to the first code hearing to review all proposed code changes. The committee would be provided those changes and relevant documentation about 3 months before the first code hearing and all code changes are published for public review at least 2 months before the first code hearing. These dates establish some starting point for review of these documents. The amount of time expended by the staff, committee and interested parties on the review of each related change cannot be estimated precisely. Experience shows it to be significant.

It should also be pointed out that ICC staff and jurisdictional members also monitor or participate in the efforts of many standards committees. For instance ICC staff is involved with ASCE 24 and recently attended their last meeting in St. Louis in mid-May 2003. Such involvement ensures, among other things, that if and when revisions to standards referenced in the codes are submitted for consideration ICC staff is fully able to address their potential application in the I-Codes. The results of the staff review of standards with respect to their conformance to the ICC procedures for reference standards are published with the applicable code change in the monograph containing all code changes that is part of the public record.

3. Identify and describe the duties of the individuals responsible for coordinating referenced publications.
a. How is the scope of the referenced publications (as applied in the code) determined?
b. What is the process for identifying and remedying conflicts?
c. How many individuals review the referenced publications for potential conflicts?
d. What are the criteria used to judge compatibility of the referenced publications with other structural requirements of the code?

The ICC Correlation Committee handles the coordination of ICC codes. This committee meets after the final outcome of the code development cycle to hear and resolve any conflicting actions. This is handled by the Manager of Codes who compiles the information for committee review. The original code committee, staff, audience, members in attendance at the Final Action Hearing and the Correlation Committee all verify the coordination of the provisions and each plays a vital role in the publication of coordinated codes. Of note each I-Code does contain a provision that establishes an order of priority. Where

differences occur between the code and a referenced standard the provisions of the code take precedence.

4. Reference publications produced by the steel, concrete, masonry, and timber industries are valuable resources. However, they also reflect the bias of the industry group, and may include structural systems or methods of construction suitable only for areas of low seismic risk. What processes are used to screen the referenced publications to ensure systems of low ductility are not constructed in regions of high seismic risk?

Pursuant to the ICC procedures related to reference standards, standards and other documents referenced in the I-Codes must have been developed via a consensus process such as prescribed by ANSI or ASTM. Because those processes provide for balance of interested and affected parties it is not possible under the ICC procedures for a standard or other document as described above to find its way into the I-Codes, unless it were developed via a consensus process. If developed through such a process the probability that any one industry group could bias the standard is very remote and if they did the process is such that those adversely affected industries would likely appeal to the standards developer and surely make their views known should the standard or other document find its way into the ICC code change process.

With respect to the seismic-related portion of the question, the provisions that require certain structural systems over another in particular seismic hazard areas are usually not found in the standards produced by industry but rather in the provisions that come from the National Earthquake Hazard Reduction Program (NEHRP). This group was set up specifically to address the creation of a national set of criteria to reduce damage to buildings due to earthquakes. This group has a number of representatives that do include code officials and structural engineers. There have been representatives from California on the committees involved with this group in the past. The members of ICC are assured that the concerns over the use of many types of construction are addressed through this Federal activity. If derived from industry documents the checks and balances previously described above would ensure that the subject document was not referenced in the I-Codes.

5. The relationship in Chapter 16 between the IBC seismic provisions and ASCE 7 is very confusing. The IBC directs the user to ASCE 7 for specific aspects of the design.

5.1. To what extent does this direction supplant the IBC provisions?

Section 102.4 of the IBC states that the codes and standards referenced in the IBC are to be considered part of the code to the prescribed extent of each reference and where differences occur between provisions of the code and referenced standards, the provisions of the code apply. Based on this section,

whenever Chapter 16 of the IBC references a specific section of ASCE 7, the provisions of ASCE 7 must be followed. If there were specific provisions in ASCE 7 that are in conflict with provisions in the IBC, the provisions of the code would apply.

5.2. For example, building irregularity is checked using ASCE 7, Section 9.5.2.3. This procedure requires that the forces used shall be those in ASCE 7, Section 9.5.5. Does this mean that the forces in ASCE 7 Section 9.5.5 supercede those in the corresponding section of the IBC, should they differ?

Section 1616.5 of the IBC requires that buildings be classified as regular or irregular based on the criteria prescribed in Section 9.5.2.3 of ASCE 7. As for determination of forces using the equivalent lateral force procedure, Section 1617.4 of the IBC has no specific provisions but references Section 9.5.5 of ASCE 7 for determination of forces using the equivalent lateral force procedure.

5.3. Similar issues occur in the nonstructural and nonbuilding structure sections. For example, QA requirements for nonstructural components are part of ASCE 7, Section 9.6, which is referenced in IBC Section 1621. Do the ASCE 7 QA requirements supercede parallel (but different) requirements in Chapter 17?

Section 1621.1 of the IBC specifically references Section 9.6 of ASCE 7 with some modifications as indicated in the IBC. An integral part of Section 9.6 of ASCE 7 is Section 9.6.1.7 on construction documents, which is not modified in the IBC. Section 9.6.1.7 of ASCE 7 refers to Table 9.6.1.7, which in turn references Appendix A.9.3 for quality assurance. Therefore, the provisions of Appendix A.9.3 of ASCE 7 do apply to quality assurance requirements for architectural, mechanical and electrical components and systems.

6. The IBC seismic provisions eliminated the requirement that the Seismic Design Category (SDC) be based on the more restrictive of the requirements for short or long period structures. This means that unreinforced masonry and concrete structures may now be constructed in many areas of California, a practice outlawed since the 1930's. What technical justification of these low ductility systems was provided, showing they provide sufficient safety?

The elimination of the requirement that the Seismic Design Category be based on the more restrictive of the short and long period design spectral accelerations includes several restrictions. In order to use the exception, all of the following must be met: (1) the approximate fundamental period of the structure, T_a, in each of the two orthogonal directions must be less than $0.8T_s$, (2) equation 9.5.5.2.1-1 of ASCE 7 (short period structure base shear) must be used to determine the seismic response coefficient, Cs, and (3) the diaphragms must be rigid as defined in Section 1602 of the IBC.

The technical justification for the exception (code change proposal S39-02) in Section 1616.3 of the 2003 IBC was that under the 2000 IBC (1997 NEHRP) provisions, short period buildings ($T_a < T_s$) may be unfairly penalized by having their Seismic Design Category controlled by the long period MCE ground motion (S_1) or design spectral response acceleration (S_{DS}) even though the structure only responds in the short period, acceleration controlled domain of the spectrum. The 0.8 factor was included to ensure that $T < T_s$ in order to provide some margin that would prevent excursions into the long period, velocity-controlled range. The requirement that equation 9.5.5.2.1-1 of ASCE 7 be used is redundant because the base shear of structures with $T_a < 0.8T_s$ is already governed by the short period portion of the response spectrum. The requirement that diaphragms be rigid was a modification made by the code change committee in response to concerns by the BSSC CRSC, so this additional restriction was added to ensure that the exception only apply to rigid structures that are less likely to experience period elongation. The ICC record of the code change cycle under which the 2003 IBC was developed indicates that code change S39-02 as modified had the support of both the BSSC CRSC and the BSSC TS-2 committee.

The ICC believes that the real issue here is that under the 2003 IBC it is possible to have buildings in California that are classified in Seismic Design Category C or even B, depending on Site Class. The issue with the new exception to Section 1616.3 in the 2003 IBC is that there are regions in the central valley that would have the Seismic Design Category controlled by the long period ground motion, and it is possible to have buildings in California that are classified in Seismic Design Category C or even B, depending on Site Class. [With respect to Site Class, under the 2000 IBC, for Site Class B soil ($F_a = 1.0$, $F_v = 1.0$), which is the best soil possible for the west coast, in order for $S_{DS} < 0.33g$ and $S_{D1} < 0.133g$ corresponding to Seismic Design Category B (for Seismic Use Group I & II), the MCE ground motion would have to be $S_S < 0.50g$ and $S_1 < 0.20g$. Based on the USGS maps and IBC Figures 1615(3) and 1615(4), there are regions of central California with $S_S < 0.50g$ and $S_1 < 0.20g$. Under the 2003 IBC, buildings that meet the exception to Section 1616.3 need only meet $S_{DS} < 0.33g$ in order to be in Seismic Design Category B (for Seismic Use Group I & II). Under the exception, it is possible to have buildings on Site Class C soil and be in Seismic Design Category B. In this case the MCE ground motion would have to be $S_S < 0.42g$. Based on the USGS maps and Figure 1615(3) of the IBC, there are some regions of central California with $S_S < 0.42g$.]

Under the IBC, buildings in Seismic Design Category B would be permitted to be constructed with ordinary concrete moment frames, ordinary plain concrete shear walls, ordinary plain masonry shear walls, and ordinary plain prestressed masonry shear walls. Buildings in Seismic Design Category C would be permitted to be constructed with intermediate concrete moment frames, detailed plain concrete shear walls, ordinary reinforced masonry shear walls, and intermediate prestressed masonry shear walls. Historically these types of

construction have not been permitted in California under the UBC because California is in either Seismic Zone 3 or 4.

This issue could be mitigated by the state agencies (DSA/HCD/OSHPD) through the state amendment process, and the Building Standards Commission could make an amendment for state owned buildings not otherwise regulated by state agencies. However, at the present time there is apparently no way to make a global amendment that affects all occupancies. This is something that would have to be done either by jurisdictions at the local level or via legislation at the state level.

7. If a referenced publication in turn references other documents, are these documents also considered to be a part of the building code? If not how is the referenced publication to be enforced?

The IBC sometimes references different editions of material standards than those in ASCE 7-02. For example, IBC references ACI 530-02 for masonry design, while ASCE 7-02 is based on ACI 530-99. Similarly, IBC references AISC Seismic Provisions for Structural Steel Buildings 2002, while ASCE 7-02 is based on AISC Seismic 97, with Supplement 2. Where there are technical differences, which edition of the material reference is enforced? If a version of a standard different from that specified in ASCE 7-02 is enforced, what steps have been taken to ensure that compatibility in design assumptions between ASCE 7 and the material standard is maintained?

If a standard that is referenced by the code in turn references another standard, then that second standard is considered to be referenced by the code. Was this not the case, there would not be a complete "chain" of provisions. If any were found to be non-compliant with ICC rules for referenced standards the code change proposal to reference that standard would be addressed as discussed above under question 2. A good example is Section 1903.6 of the 2003 IBC. This section references Section 3.6 of ACI 318. Subsection 3.6.5 of ACI 318 references ASTM C 494 and ASTM C 1017. The 2003 IBC does not make direct reference to either ASTM C 494 or ASTM C 1017, but they are indirectly referenced by the reference to Section 3.6 of ACI 318 in Section 1903.6 of the 2003 IBC. In this situation the designer must comply with the ASTM standards and therefore they too are considered an extension of the code.

With respect to the example above concerning ASCE 7, if such conflicts are known to currently exist then they should be identified to ICC staff who will notify the ICC Correlation Committee or the appropriate ICC Code Council. If there is an issue with various referenced editions of the same standard in the ICC codes, the Ad Hoc Committee on the Use of Referenced Standards would look at those standards to see if a revision to the code needs to be made. It must be noted that at times in the past, a code change proponent and the membership have agreed to use an older edition of a given standard for peculiar reasons.

8. Describe the services that ICC currently provides to enforcement agencies for code support.
a. Does ICC provide interpretation services for questions on the referenced publications?
b. Does ICC currently provide product evaluation services?
c. Does ICC currently provide certification programs for inspectors, special inspectors, and plan reviewers?
d. If so, please identify each type of testing and certification program.

The ICC provides interpretation services, product evaluation services, and certification programs for personnel. These are described below.

Interpretations

The ICC offers three types of interpretations: telephone, written staff and formal published interpretations. Over 100,000 telephone interpretations are provided each year. An informal written staff interpretation can be developed and would go through an internal peer review before being sent to the requesting party. Over 5,000 written interpretations are issued each year that are a formal, published position of the ICC that would be developed with staff support through an ICC Interpretation Committee.

Turnaround time for a phone-in interpretation is in the order of hours. A written staff interpretation request receives a response in five days for a single response. More complicated responses will understandably take more time and the customer is notified of such. Request for a formal published position takes a couple of weeks.

The code interpretation policy of ICC outlined above is essentially the same as that previously offered to those in California by ICBO. These services are available free of charge to jurisdictions (e.g. enforcement agency staff) that have adopted the I-Codes. The ICC also offers free telephone and email code opinion services to ICC members. As both a member and an enforcement agency, staff of the CA OSHPD would be provided these services at not charge.

Evaluation Services

The ICC-ES currently provides a product evaluation program for use by enforcement agency staffs to ascertain code conformance of products with the 2003 I-Codes (and other codes the applicant would like addressed by the evaluation report) as described in materials attached to this response.

The process starts with an application and fees being filed by an individual or company seeking recognition of a material, product, component or assembly, hereafter called product. If the product is deemed to be fully regulated by the

code, the supporting data submitted by the applicant is reviewed by staff engineers to determine whether adequate justification has been submitted to make this determination. A key element for any test data submitted is that it must be generated by an approved laboratory. The ICC-ES definition of this is that the laboratory must be accredited, for the tests they have conducted, by an accreditation body which can trace its recognition to the International Laboratory Accreditation Cooperation, the international body for accreditation. International Accreditation Service (IAS), a subsidiary corporation of ICC, is one of three current domestic accreditation bodies that have this recognition. When the staff engineer has been satisfied that the data submitted justifies compliance with the appropriate 2003 International Code, a draft of the report is prepared for approval by the ICC-ES Evaluation Committee. Subsequent applications under the criteria are processed and released by the ICC-ES staff based on the Committee's earlier input.

Where the product is not addressed or adequately addressed by the code to assure fairness in issuing multiple evaluation reports on a product, an acceptance criteria is developed for consideration and approval by the ICC-ES Evaluation Committee which is composed of code officials whose only interest is public safety. The acceptance criteria, upon approval by the Committee, is then used as the basis of review by the ICC-ES staff as described in the previous paragraph.

The acceptance criteria process starts with discussions between the applicant and the ICC-ES project engineer to determine what type of recognition the applicant seeks under the I-Code and legacy codes, if any are being sought. The project engineer then develops a proposed acceptance criteria to determine compliance with the code. For innovative construction not addressed by the code, compliance is determined under Section 104.11 of the IBC. (Alternative materials, design and methods of construction and equipment). In the process of developing the proposed document, the engineer may consult with independent experts in the appropriate field.

Upon completion of the proposed document, a notice for a public hearing before the Evaluation Committee is announced at least one month before the hearing date. The notice is sent to all known interested parties as well as being posted on the ICC-ES web site. The proposed document is available for downloading on the web site at that time. At the hearing, all written comments submitted earlier and verbal comments at the hearing are evaluated by the ICC-ES staff and Evaluation Committee. Several iterations of this process may be necessary before the Evaluation Committee is satisfied that the document meets the needs of the code official under the appropriate codes. The approved acceptance criteria are then posted on the ICC-ES web site for review and use by any interested party concerning compliance with the I-Codes and legacy codes. The open process provides the basis of receiving the most recent technology

available on the subject, and establishes a uniform and equitable basis for recognition of competitive products.

Evaluation of some fairly simple and basic products fall between what is required by acceptance criteria and specific code requirements. Where there is no imminent threat to public safety, these types of products can be reviewed after an "evaluation guideline" is developed. This document is a published policy for evaluation reports developed by the ICC-ES staff. The guideline is placed on the ICC-ES web site where comments from interested parties are solicited. The final document is approved by the Evaluation Committee without a formal public hearing as for acceptance criteria. However, if there be concerns expressed by the Committee or interested parties, guidelines are declared acceptance criteria, requiring that the public process be followed.

All applicants for products recognized in ICC-ES reports must be under a manufacturing or fabrication quality control program. Where listing is required by the code, an inspection agency administers the program. Any inspection agency doing this work must be approved by ICC-ES. Since there is no international agreement for accreditation of inspection agencies, IAS accreditation is predominately used as the basis of approval provided it is in the field of expertise necessary. Where listing is not required by the code, ICC-ES reviews the quality control manuals and performs an initial inspection of the facility. Thereafter it monitors the product through its reexamination process every year or two years, with onsite inspections as necessary.

One of the appropriate processes described above is repeated when technical changes or additions to the report require revisions to acceptance criteria or evaluation guidelines.

<u>Personnel Certification</u>

During the past three decades, the ICC - through its predecessor Model Code Organizations - has developed the nation's most robust and prestigious professional certification credentials for the code administration professions. Through the ICC, nationally recognized certifications are available for 54 different code administration professions, including residential and commercial inspector, permit technician, plans examiner, special inspector, and building official. A complete listing of these programs has been provided to DSA as an attachment to this response. Additional information on these programs is also available on the ICC web site.

Nearly 70,000 individuals hold "current" certification through ICC, with these certificates maintained on a triennial basis through re-examination or professional development activities. ICC certification is recognized by most of the states which license or otherwise regulate code administrators, including California (AB 717).

9. Please provide a list of referenced publications that may be required in order to plan review an acute care hospital, skilled nursing facility, licensed clinic, and/or correctional treatment center. Please provide a separate, comprehensive list (not a reference to a portion of the model code). Please provide an estimate of the cost to purchase the required referenced publications.

The following is a list of key structural standards that may be required for design and plan review for the types of buildings listed above. Depending on the scope of the project, additional standards may be required. In addition, some of these standards may serve as reference documents.

1. *ASCE 7-02*
2. *ACI 318-02*
3. *AF&PA NDS -2001 (ASD)*
4. *AF&PA/ASCE 16-95 (LRFD) (If applicable)*
5. *ACI 530-02/ASCE 5-02/TMS 402-02*
6. *AISC ASD 1989 & Supplement No. 1 (2001)*
7. *AISC LRFD 1999*
8. *AISC HSS 2000*
9. *NASPEC 2001 (Formerly AISI)*
10. *AISC Seismic 2002*
11. *IBC-ASTM Book of Standards (Contains all ASTM Standards referenced in IBC Chapter 35)*
12. *ASCE 24-98: Flood Resistant Design and Construction*
13. *AWS D1.1-2000: Structural Welding Code-Steel*
14. *AWS D1.3-98: Structural Welding Code-Sheet Steel*
15. *AWS D1.4-98: Structural Welding Code-Reinforcing Steel*

The costs to obtain the aforementioned standards will vary depending on whether the jurisdiction is a member of a particular standard developing organization and on the quantity of each standard purchase. An approximate cost based on single unit member pricing would range between $1,000 and $1,100 and takes into account the savings from purchasing the IBC-ASTM Book of Standards, versus purchasing each ASTM standard separately. If this document were not available through ICC the cost to procure separate copies of those ASTM standards would be considerably more.

10. Please provide a list of referenced publications that may be required in order to field review construction of an acute care hospital, skilled nursing facility, licensed clinic, and/or correctional treatment center. Please provide a separate, comprehensive list (not a reference to a portion of the model code). Please provide an estimate of the cost to purchase the required referenced publications.

The following is a list of key reference standards that may be required for field inspection for the types of buildings listed above. Depending on the scope of the

project, additional standards may be required. In addition, some of these standards may serve as reference documents.

1. *ACI 318-02*
2. *ACI 530-02/ASCE 5-02/TMS 402-02*
3. *AISC ASD 1989 & Supplement No. 1 (2001)*
4. *AISC LRFD 1999*
5. *AISC HSS 2000*
6. *NASPEC 2001 (Formerly AISI)*
7. *IBC-ASTM Book of Standards (Contains all ASTM Standards referenced in IBC Chapter 35)*
8. *AWS D1.1-2000: Structural Welding Code-Steel*
9. *AWS D1.3-98: Structural Welding Code-Sheet Steel*
10. *AWS D1.4-98: Structural Welding Code-Reinforcing Steel*
11. *AF&PA NDS -2001 (ASD)*

The costs to obtain the aforementioned standards will vary depending on whether the jurisdiction is a member of a particular Standard Developing Organization or based on the quantity of each standard purchase. An approximate costs based on single unit member pricing would range between $770.00 and $870.00 and takes into account the savings from purchasing the IBC-ASTM Book of Standards, versus purchasing each standard separately.

Questions Related to Fire and Life Safety Provisions

1. Application of a consistent code throughout the country is an important consideration. To date, what state and local jurisdictions have adopted the International Building Code?

A list that identifies the state and local adoption status of all I-Codes is provided as an attachment to this response. At the Federal level I-Codes have been referenced and recognized by the CPSC, DOE, DoD, FEMA, GSA, HUD and OMB.

2. The IBC allows heights and areas that are much larger than what has historically been allowed in the UBC and CBC. What justification was provided to increase the allowable heights and areas so drastically?

The allowable heights and areas are an increase over what was found in the 1997 UBC. The committee that prepared an initial draft of an IBC, in reviewing all of the heights and areas that were used in the model codes at that time, found that to do a proper review a close look at the impacts of these values had to be done considering both new construction and construction on existing buildings. It was found that the values from more restrictive tables did not necessarily adversely affect the construction of a new building since during the conceptual and design stages such areas could be accounted for in the design and

continued use of the building. However, in existing construction, there were many instances of restrictive values imposing a limitation on the uses that could be placed within a given structure or on any planned addition to such building. This is due to the construction of a structure under a previous code that may have allowed an additional amount of area that would be expected to be used when needed. More restrictive areas, in particular, could cause the planned work to be abandoned as a result.

That drafting committee also investigated the information available on fire losses related to building size. Such data was not found nor was it provided to the committee by anyone in attendance. To date, ICC is very interested in any such information that can be related to this topic and continues to encourage anyone to forward such information to Paul Armstrong at the ICC office in Whittier, CA.

3. The IBC offers substantial "trade-offs" in construction for automatic sprinkler systems. It is very likely that an earthquake may render such sprinkler systems inoperative in areas of high seismic activity. Additionally, sprinkler systems may be shut off for maintenance or service. How are buildings protected against fire, where sprinkler systems are used for trade-offs and then fail to operate when needed?

The issue is really the performance of any such fire protection before, during and after a fire, earthquake or any such event. The building code provisions intend that any such fire protection be in place and functional when and if such an event should occur. As with the World Trade Center collapse, the issue is also with passive fire protection as well as active suppression. The codes are set up to ensure that such fire protection if designed, constructed and maintained properly will perform in the manner intended. This is reflected in the excellent fire loss records of sprinklered office buildings. The building code works together with the fire code among others to ensure the continued operation of such systems. It is when the proper maintenance of both active and passive fire protection systems is not done, that such problems can arise.

4. UBC section 302.1, exception 2.4 allows a kitchen not to be separated from the dining area of which it is a part. Is this allowed in the IBC? If so, where?

The IBC handles this in the Occupancy classification of restaurants themselves. The Group A, Division 2 Occupancy classification includes the kitchens that are a part of the assembly use In Section 303.1 of the IBC.

5. Sprinkler requirements for Group I occupancies are confusing and/or contradictory. Section 903.2.5 requires sprinklers *throughout buildings with a Group I fire area*. Table 903.2.13 (2003 IBC draft) refers to section 407.5 for "additional required suppression systems." Section 407.5 requires sprinklers *throughout smoke compartments containing patient sleeping rooms* in I-2 occupancies. Are sprinklers required throughout buildings, or only in smoke

compartments containing sleeping rooms in hospitals? Do fire walls create separate buildings for the purpose of fire sprinklers? (Section 903.2.5 requires sprinklers “throughout buildings,” and section 705.1 says that portions of buildings separated by fire walls shall be considered separate buildings. Are sprinklers allowed to stop at the fire wall?)

The sprinkler requirements found in Section 903.2.5 of the IBC set out the general rule that throughout all buildings containing such uses an automatic sprinkler system must be installed. Table 903.2.13 of the IBC then provides additional requirements and, for these uses, sends the user to Section 407.5 of the IBC. The first sentence in Section 407.5 is redundant as it requires the sprinkler system in the patient sleeping area, but is necessary to set the stage for the second sentence. The second sentence then follows with the additional requirement of the quick response or residential sprinklers in the patient sleeping area. As for the fire wall in the IBC creating separate buildings for sprinkler requirements, it is true. They are then separate buildings and as such would not be provided with an automatic sprinkler system unless required to do so by another provision of the code. Interestingly, the 1997 UBC only required the sprinkler system to be in the Group I Occupancy portion of the hospital itself; not throughout the entire building containing the use.